What is claimed is:

1. A printed wiring board formed by interconnected layers, each layer comprising:

an insulator film, wherein at least one via hole is formed in the insulator film;

a conductor pattern located on the insulator film, wherein the conductor pattern includes a conductor metal; and

a solid conductive material, which includes metal components, located in the via hole, wherein the solid conductive material includes a first type of conductive material and a second type of conducting material, wherein the first type of conducting material includes a metal, and the second type of conductive material includes an alloy formed by the metal and the conductor metal.

2. The wiring board according to claim 1, wherein the metal is at least one of tin and indium.

3. The wiring board according to claim 1, wherein the metal is a first metal, and the first type of conducting material is an alloy of the first metal and a second metal, and the second metal is at least one of silver, copper, gold, platinum, palladium, nickel and zinc.

4. The wiring board according to claim 2, wherein the first type of conducting material is an alloy of the metal and at least one of silver, copper, gold, platinum, palladium, nickel and zinc.

5. The wiring board according to claim 1, wherein the metal accounts for 20-80wt% of the metal components of the solid conductive

material.

6. The wiring board according to claim 1, wherein the conductor metal is copper.

7. The wiring board according to claim 1, wherein the insulator film is made of thermoplastic resin or thermosetting resin.

8. The wiring board according to claim 1, wherein the first type of conductive material is a unified conductive compound and the second type of conductive material is a solid phase diffusion layer, wherein the solid phase diffusion layer is located between the unified conductive compound and the conductor pattern.

9. The wiring board according to claim 1, wherein the melting point of the metal is lower than a predetermined temperature to which the wiring board is heated to join the layers.

10. The wiring board according to claim 9, wherein the metal is a first metal, and the first type of conducting material is an alloy of the first metal and a second metal, and the melting point of the second metal is higher than the predetermined temperature.

11. A method of making a printed wiring board comprising:

packing via holes formed in an insulator material with an interlayer conducting material, wherein the interlayer conducting material includes a first metal material and a second metal material, and the second metal material melts at a temperature higher than a predetermined temperature;

stacking layers of the insulator film with conductor patterns to form a stack such that the via holes are located between the

conductor patterns in the stack;

forming a solid conductive material in each of the via holes to electrically connect the connector patterns by heating the stack to the predetermined temperature and pressing the stack, wherein the solid conductive material of each via hole includes a unified conductive layer and a solid phase diffusion layer, and the solid phase diffusion layer is formed by the first metal material and a conductor metal, wherein the conductor metal is a metal of the associated conductor pattern.

12. The method according to claim 11 including the step of employing at least one of tin and indium as the first metal material.

13. The method according to claim 11 including the step of employing at least one of silver, copper, gold, platinum, palladium, nickel and zinc as the second metal material.

14. The method according to claim 12, including the step of employing at least one of silver, copper, gold, platinum, palladium, nickel and zinc as the second metal material.

15. The method according to claim 11, including the step of employing the first metal material to account for 20-80wt% of the metal in the interlayer conductive material.

16. The method according to claim 11 including the step of employing copper as the conductor metal.

17. The method according to claim 11 including the step of employing thermoplastic resin or thermosetting resin as the material of the

insulation film.

18. The method according to claim 11 including employing particles made of the first metal material and particles made of the second metal material in the interlayer conductive material.

19. The method according to claim 11 including employing alloy particles that are made of the first metal material and the second metal material in the interlayer conductive material.

20. The method according to claim 11, wherein the heating heats the stack to a temperature of at least 220 degrees.

21. The method according to claim 11, wherein the pressing applies a pressure of at least 0.5MPa.

22. The method according to claim 11 including forming the interlayer connecting material as a paste prior to the packing, wherein the forming of the paste includes adding a solvent to particles made of the metal materials.

23. The method according to claim 22 including adding a dispersing agent to the paste, wherein the weight of the dispersing agent in the paste is 0.01 to 1.5% of the weight of all solids in the paste.

24. The method according to claim 22 further comprising:

adding binder particles to the paste; and

preheating the stack prior to the heating and pressing step and after the packing step to cause the binder particles to diffuse into the metal materials.

25. The method according to claim 24 further comprising the step of including a binder metal in the binder particles that melts at a temperature that is lower than that at which the first metal material melts, wherein the preheating heats the stack to a temperature that melts the binder metal, and the binder metal interconnects the first metal material and the second metal material as a result of the preheating.

26. The method according to claim 24 further comprising the step of employing binder particles that have a particle size of 1-100nm, wherein the first metal material and the second metal material are interconnected by a binder metal, which is included in the binder particles, as a result of the preheating.

27. The method according to claim 11 further comprising the step of including the first metal material and the second metal material in particles that form part of the paste, wherein the particles have a mean particle size of 0.1-20μm and a specific surface area of 0.1-2.5 m^2/g.

28. A method of making a printed wiring board comprising:

packing via holes formed in an insulator material with an interlayer conducting material, wherein the interlayer conducting material includes particles that include metal material, wherein the particles have a mean particle size of 1-500nm;

stacking layers of the insulator film with conductor patterns to form a stack such that the via holes are located between the conductor patterns in the stack;

forming a solid conductive material in each of the via holes to electrically connect the connector patterns by heating the stack to the predetermined temperature and pressing the stack, wherein the solid conductive material of each via hole includes a unified conductive layer and a solid phase diffusion layer, and the solid phase diffusion layer is formed by the metal material and a conductor metal, wherein the conductor metal is a metal of the associated conductor pattern.

29. The method according to claim 28 including the step of employing at least one of zinc, aluminum, and nickel as the metal material.

30. The method according to claim 28, wherein the particles are relatively fine particles, and the method includes adding relatively large particles, which are relatively large compared to the relatively fine particles, to the interlayer connecting material, and the relatively large particles are made of the same material as the relatively fine particles.

31. The method according to claim 28, wherein the particles are relatively fine particles, and the method includes adding relatively large particles, which are relatively large compared to the relatively fine particles, to the interlayer connecting material, and the relatively large particles include metal that forms an alloy with the metal material of the relatively fine particles.

32. A method of making a printed wiring board comprising:

packing via holes formed in an insulator material with an

interlayer conducting material, wherein the interlayer conducting material includes relatively large particles that include metal material and relatively fine particles that include metal material, wherein the relatively fine particles have a mean particle size of 1-500nm, and wherein the metal material of the relatively large particles forms an alloy with the metal material of the relatively fine particles;

stacking layers of the insulator film with conductor patterns to form a stack such that the via holes are located between the conductor patterns in the stack;

forming a solid conductive material in each of the via holes to electrically connect the connector patterns by heating the stack to the predetermined temperature and pressing the stack, wherein the solid conductive material of each via hole includes a unified conductive layer and a solid phase diffusion layer, and the solid phase diffusion layer is formed by one of the metal materials and a conductor metal of the associated conductor pattern.

33. The method according to claim 32 including the step of employing at least one of zinc, aluminum, and nickel as the metal material included in the relatively large particles.

34. The method according to claim 32 including the step of employing copper as the metal of the associated conductor pattern.

35. The wiring board according to claim 32 including the step of employing thermoplastic resin or thermosetting resin to form the insulating film.

36. The method according to claim 32, wherein the heating heats the stack to a temperature of at least 220 degrees.

37. The method according to claim 32, wherein the pressing applies a pressure of at least 0.5MPa.

38. The method according to claim 32 including forming the interlayer connecting material as a paste prior to the packing, wherein the forming of the paste includes adding a solvent to particles made of the metal materials.

39. The method according to claim 38 including adding a dispersing agent to the paste, wherein the weight of the dispersing agent added to the paste is 0.01 to 1.5% of the weight of all solids in the paste.